ELSEVIER

ISA Transactions 34 (1995) 415–417

ISA
TRANSACTIONS®

# Cumulative contents of Volume 34

Volume 34, Number 1, March 1995

1 **Editorial viewpoint**
3 **Development of biotechnology control systems**
F.J. Romeu
21 **Applications of automatic control systems for chlorination and dechlorination processes in wastewater treatment plants**
B. Dieu, M.T. Garrett, Jr., Z. Ahmad and S. Young
29 **On the usage of spreadsheet packages for automating statistical process control tasks**
P.A. Jokinen
39 **Object-oriented Ada-based development of highly reusable control software**
D.V. Boriani
53 **Axiomatic specification and logic programming: fast prototyping of correct designs**
D.V. Boriani
67 **On-line measurements using mass spectrometry**
M.R. Walsh and M.A. LaPack
87 **Influence of different excitation methods on vibration calibration**
F.Q. Wang, Y.Z. Guo and X.Z. Zu
93 **System identification for a photodiode-based measuring system**
H.M. Gutierrez and J.P. Rust
101 **Precision measurements and control of an automated two-dimensional grid plate testing machine**
N. Vira and M. Alagudu

Volume 34, Number 2, June 1995

117 **Editorial viewpoint**
119 **Manufacturing information systems for the process industry – Responding to the plant management challenges of the 90's**
G. Coppus and A. Strashok
133 **Life cycle costs and benefits of process automation in bulk pharmaceuticals**
D.J. Adler, J.A. Herkamp, J.R. Wiesler and S.B. Williams
141 **Knowledge-based system development tool selection for process control**
D.V. Boriani
153 **The I-I-Con: A visual communications paradigm to integrate industrial control system engineering**
D.K. Carter, A.D. Baker and W.P. Alexander

**165 Handling process disturbances and measurement errors**
F.F. Sanders
**175 Toward an understanding of DCS control operator workload**
C.S. Connelly
**185 How critical is your control system?**
J.A. Shaw
**193 Using Markov models for safety analysis of programmable electronic systems**
J.V. Bukowski and W.M. Goble
**199 Intelligent transmitters for process control – What, how, when, how much? A user's point of view**
F. Beaudouin, J.M. Favennec and M. Piguet
**209 Optimal selection of thermowells**
I.H. Gibson

Volume 34, Number 3, October 1995

**217 Editorial viewpoint**
**219 Digital controller design – Alternative emulation approaches**
D.A. Pierre and J.W. Pierre
**229 Short history of the flowmetering**
F. Cascetta
**245 A completely automatic method for testing of magnetic materials**
V.N. Jambhekar and N.C. Ray
**253 Uncertainty analysis of rocket motor thrust measurements with correlated biases**
R.P. Taylor, W.G. Steele and F. Douglas, III
**261 How to design, verify and validate emergency shutdown systems**
D.L. Green and A.M. Dowell, III
**273 International and European standardization for PLCs in safety critical systems – Qualification, type testing, certification and licensing**
H. Gall and G. Rabe
**283 On the safety analysis of requirements specifications for safety-critical software**
A. Saeed, R. de Lemos and T. Anderson
**297 The application of HAZOP studies to integrated requirements models for control systems**
C. Fencott and B.D. Hebbron

Volume 34, Number 4, December 1995

**309 Editorial viewpoint**
**311 The "primary integrity parameters" – Design parameters for safety systems**
S.E. Smith and P. Gruhn
**319 Hydrodynamic characteristics of a butterfly valve – Prediction of torque characteristics**
T. Kimura, T. Tanaka, K. Fujimoto and K. Ogawa
**327 Hydrodynamic characteristics of a butterfly valve – Prediction of pressure loss characteristics**
K. Ogawa and T. Kimura
**335 Technology ... The enabler for tomorrow's agile enterprise**
S.L. Young

**343 Does a Manufacturing Execution System reduce the cost of production for bulk pharmaceuticals?**
D.J. Adler, J. Herkamp, D. Henricks and R. Moss
**349 Scheduling approaches for the batch process industries**
G.V. Reklaitis
**359 Comprehensive information management: EPA, OSHA and beyond**
D.P. Gillespie
**369 SP88 – The painkiller in validation**
N. Haxthausen
**379 Computer system implementation, batch standards and validation**
M. Webb
**387 Not a batch language: A control language!**
E.H. Bristol
**405 Evolution of operator decision making**
D.A. Strobhar
**411 Author index of Volume 34**
**415 Cumulative contents of Volume 34**